

CLAIMS

What is claimed is:

1. A bi-directional vent valve comprising:

a flexible member defined by an outer surface, an inner surface, said flexible member defining a sealable aperture between the outer surface to the inner surface, the sealable aperture being configured to seal between the outer surface and the inner surface when a differential pressure between the outer surface and the inner surface is less than a predetermined value, the flexible member being further configured to deform when the differential pressure exceeds a predetermined value, thereby causing the sealable aperture to form an opening.

2. The valve of Claim 1, wherein the flexible member is curved.

3. The valve of Claim 1, wherein the flexible member is formed in the shape of a dome.

4. The valve of Claim 1, wherein the flexible member is constructed of fluorosilicon.

5. The valve of Claim 1, wherein the flexible member is configured to open the sealable aperture when the pressure against the inner surface exceeds the pressure against the outer surface by a range of about 0.0 to 1.0 psid.

6. The valve of Claim 1, wherein the flexible member is configured to open the sealable aperture when the pressure against the inner surface exceeds the pressure against the outer surface by about 0.25 psid.

7. The valve of Claim 1, wherein the flexible member is configured to open the sealable aperture when the pressure against the outer surface exceeds the pressure against the inner surface by a range of about 0.0 to 3.0 psid.

8. The valve of Claim 7, wherein the flexible member is configured to open the sealable aperture when the pressure against the inner surface exceeds the pressure against the outer surface by about 1.25 psid.

9. The valve of Claim 1, further comprising an elongated body coupled to an outer surface of the flexible member.

10. The valve of Claim 9, further comprising a retaining ring coupled to said elongated body wherein the retaining ring is configured to retain the flexible member within the elongated body.

11. The valve of Claim 9, further comprising a protective device coupled to the body.

12. The valve of Claim 11, wherein the protective device defines a vent path between the protective device and the body.

13. The valve of Claim 1, where, wherein the sealable aperture is a slit having a pair of adjacent mating surfaces.

14. An automotive component comprising:
an elongated body defined by a first end, a second end and a cavity extending from the first end to the second end; and
a flexible vent member coupled to said elongated body, wherein the flexible member is configured to seal between the first end and the second end, the flexible member being further configured to provide at least a portion of a vent path between the first end and the second end in response to a predetermined pressure differential between the first end and the second end.

15. The component of Claim 14, wherein the flexible member defines a slit having a pair of adjacent internal surfaces, the flexible member being configured to deform in response to the predetermined pressure differential, thereby causing the internal surfaces to separate and form said at least a portion of a vent path.

16. The component of Claim 14, further comprising a protective device coupled to the elongated body.

17. The component of Claim 14, wherein the flexible member defines a curved surface.

18. A method of venting a chamber of an internal combustion engine comprising:

forming a slit within a flexible member, wherein the slit extends from an inner surface and an outer surface of the flexible member;

coupling the flexible member to the internal combustion engine, wherein the internal combustion engine defines an aperture in fluid communication with the chamber, and the aperture defines at least a portion of a vent path for the chamber.

19. The method of Claim 18, further comprising:
coupling the flexible member to an elongated body, wherein the elongated body includes a first end, a second end and an internal bore extending therebetween, and the internal bore defines at least a portion of the vent path for the chamber.

20. The method of Claim 17, further comprising:

forming the flexible member such that the outer surface is curved.